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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FERRIS, DERRICK W	
ART UNIT	**PAPER NUMBER**
2663	10

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/513,090	PATEL ET AL.	
	Examiner	Art Unit	
	Derrick W. Ferris	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-107* is/are pending in the application.

4a) Of the above claim(s) *1-36,47-84 and 103-107* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *37-46 and 85-102* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Examiner thanks applicant for pointing out that **claims 103-107** were not addressed in examiner's prior Office action filed 9/10/03. Examiner has mistakenly placed claims 103-107 in group II where claims 103-107 should have been placed in group I since the set of claims 103-107 are directed towards both wireless and wireline routers in a network (see claim 103, line 10). Examiner has clarified the restriction below for applicant's convenience.

2. Applicant is non-responsive to the specification objection for Office action filed 9/10/03 in reference to line item #1. Examiner notes the response may be necessary for further consideration of the claims. See MPEP 714.02.

3. In response to applicant's request for reconsideration, the examiner has clarified the rejections below along with adding additional references to further support the examiner's argument.

Specification

4. The disclosure is objected to because of the following informalities: please update related data section on page one of the specification.

Appropriate correction is required.

Election/Restrictions

5. During a telephone conversation with Terry Stalford on 6/03 a provisional election was made without traverse to prosecute the invention of group II, **claims 37-46, 85-94 and 95-102**. Affirmation of this election must be made by applicant in replying to this Office action. Group I, **Claims 1-26, 47-84 and 103-107** are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention. Group I is drawn to a system comprising both wireless and wireline nodes where communication is accomplished through a wireline node. Group I is classified in at least 370, subclass 352. Group II, claims 37-46, 85-94, and 95-102 are drawn to a system comprising only wireless nodes (e.g., see claims 42, 45, 92, and 93 were neighboring nodes are wireless nodes). Group II is classified in at least class 370, subclass 310. Examiner notes Group II has separate utility since the wireless nodes operate independently of a wireline node.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. **Claims 37-46 and 85-94** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 37 and 85 recite the limitation "*transitioning the wireless node to a normal operating state in response to determining the operational data is within predefined parameters*". Limited support in applicant's specification is provided at least on page 20, lines 10-23; page 22, lines 5-32; page 36, lines 13-19; and page 39, lines 9-20. In particular, applicant describes collecting operational data and setting operational thresholds 80 but applicant fails to disclose how to determine when to transition to a "normal operating state" (i.e., how to determine when operational thresholds have been met). Specifically, examiner notes no

correlation in applicant's specification between the operational thresholds 80 as shown in figure 3 (i.e., "% call blocks", "% failure", "% drops", "%max delay", "% FER", "Max RTT") and the collected operational parameters for a step of determining. In addition, it is also unclear how parameters would be modified (in reference to page 22, lines 8-16) to "ensure maximum efficiency and minimum RF interference" [page 22, lines 25-26]. As claims 38-46 and 46-94 depend on claims 37 and 85 respectively, these claims also stand rejected.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 37-46 and 85-94** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, examiner notes the term "predefined parameters" as recited in independent claims 37 and 85 is not clearly defined in applicant's specification. Examiner notes the term "predefined parameters" was only found at page 5, line 12 of applicant's specification. Examiner notes that sentence used for "predetermined parameters" in applicant's written disclosure is roughly the same sentence as recited in the claims, which thus does not provide a clear definition of "predefined parameters" or its equivalents with respect to the rest of applicant's specification (i.e., the equivalent terms possibly recited in applicant's written disclosure). As claims 38-46 and 86-94 depend on claims 73 and 85 respectively, these claims also stand rejected.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. **Claims 37-40, 44-46, 85-88, and 92-94** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,949,760 to *Stevens et al.* ("*Stevens*") in view of "On the Performance of a Routing Protocol for the Reconfigurable Wireless Network" to *Haas et al* ("*Haas*).

Examiner assumes a step of determining the operational data is within predefined parameters would have been obvious to someone skilled in the art in order to overcome the 112-first and second paragraph rejection.

As to **claim 37**, *Stevens* teaches a start-up state (i.e., applicant's start-up state 220), a learning state (i.e., applicant's learning state 222), and a general operational state (i.e., applicant's partial operational state 224). In particular, shown in figure 2 of *Stevens*, step 30 describes a start-up state; steps 32, 34, 36, 38, 40, and 42 describe a learning state; and step 44 describes a general operational state (i.e., a start-up state 220 configures the RF/IP topology and a learning state 222 refines the topology [see applicant's specification on page 20, lines 15-22]). The limitations "activating the wireless node" and "activating a radio frequency" are taught in addition to a step of "automatically determining" as part of step 30 using a reasonable but broad interpretation of "activating". In particular, as the quality of a wireless node and a wireless node's neighbors are determined [column 2, lines 63-64] examiner notes that both the node and the RF links that the node uses to communicate with it's neighbors must be "activated". Once the quality of the links are determined (step 30), a transition to a learning state takes

place as shown for step 32. In particular, step 32 collects operational data and modifies the operating parameters based on the operating data [column 3, lines 8-9]. Once the parameters are modified, a set of potential links are assigned and then the links are actually assigned (i.e., reconfigured) were a transition to a general operational state takes place since routing and switching take place (i.e., the traffic load is handled).

Examiner notes that the reference is silent or deficient to a further step of "*configuring the wireless node based on the operational parameters*" for a start up state. Examiner notes that it would have been obvious to someone skilled in the art prior to applicant's invention to configure the wireless node based on the operational parameters. Examiner notes that it would have been obvious since in order for a node to communicate with itself and its neighbors a node must first be configured. Thus *Stevens* provides support for configuring a plurality of parameters using a reasonable but broad interpretation of "parameters". Examiner also notes the reference is silent or deficient to a further step of "*transitioning the wireless node to a normal operating state in response to determining the operational data is within predefined parameters*" for an operational state (i.e., ensures compliance with operational thresholds). Examiner notes that it would have been obvious to someone skilled in the art prior to applicant's invention to transition to a "normal" operation state in response to determining the operational data as within a predefined parameters. *Stevens* invention provides for a method of assigning communications links in a dynamic communication network of mobile nodes [column 3, lines 56-58]. The link assignments change in real time and are implemented in a neighborhood of nodes where the neighborhood position is changeable as well the

position of nodes within a neighborhood [column 3, lines 59-63]. As the position changes, examiner notes a motivation to go back to a step 32, which is the learning state. Specifically, that the database created also may include position information of a node in a neighborhood, or a nodes position with respect to the community of neighbors, or a previous position of a node [column 3, lines 1-4]. Thus *Stevens* discloses reverting back to a learning state when the network changes or maintaining the current state when the network is consistent. In other words the reference teaches: "in response to determining the operational data is within predefined parameters". As additional support, *Haas* discloses that nodes in network can be highly mobile, thus rapidly changing the nodal constellation and the presence or absence of links [left hand column page 102]. Thus *Haas* provides a further motivation for a need for nodes to reconfigure themselves if predefined parameters are not within thresholds and a need to maintain normal operations if predefined parameters are within thresholds (i.e., once a node starts routing/switching there is a need to reconfigure the node if the node moves out of a zone causing parameters not to be within a "predetermined threshold").

As to **claims 38 and 86**, see *Stevens* column 2, lines 63-64.

As to **claims 39 and 87**, see *Stevens* column 3, lines 1-4 for a list of nodes a column 3, lines 5-25 for operating parameters to account for those nodes.

As to **claims 40 and 88**, see similar reasoning behind the rejection for claim 38.

As to **claims 44, 45, 92, and 93**, as each node 20 can route or switch, examiner notes that node 20 comprises of functionality indicative of a wireless router.

As to **claims 46 and 94**, see step 34 of figure 2 for *Stevens*.

As to **claim 85**, see the rejection for claim 37 where examiner notes it would have been obvious to implement the states using computer instructions as part of a design choice as is well known in the art.

12. **Claims 95-102** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,949,760 to *Stevens et al.* ("*Stevens*") in view of "On the Performance of a Routing Protocol for the Reconfigurable Wireless Network" to *Haas et al* ("*Haas*) and in further view of "Internet Based Mobile Ad Hoc Networking" to *Corson et al.* ("*Corson*").

As to **claim 95**, in addition to the reasoning behind the rejection for claim 37, both *Stevens* and *Hass* are silent or deficient to disclosing an IP topology. Examiner notes that it would have been obvious to someone skilled in the art prior to applicant's invention to disclose IP for an ad hoc network. *Corson* cures the deficiency by disclosing a motivation to use IP over and ad hoc wireless network as is known in the art. In particular, figure 2 shows mobile routers capable of running IP.

As to **claims 96-102**, examiner notes that each node exchanges "self-information" which includes identification information (i.e., access technology), traffic load, available power (RF coverage parameters), potential destination (network configuration information), traffic quantities (control parameters, traffic priorities, and link quality (interference parameters) using a reasonable but broad interpretation of the claimed subject matter [column 2, lines 45-59].

13. **Claims 41, 42, 43, 89, 90, 91 and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,949,760 to *Stevens et al.* ("*Stevens*") in view of "On the

Performance of a Routing Protocol for the Reconfigurable Wireless Network" to *Haas et al* ("*Haas*) and U.S. Patent No. 6,421,731 to *Ciotti, Jr. et al.* ("*Ciotti*").

As to **claims 41, 42, 43, 89, 90, 91 and 43**, *Stevens* may be silent or deficient to "transitioning back" to a known state in response to some action such as "determining the operational data is outside the predefined parameters", "a change in neighboring wireless topology" and "accepting a modification in operating parameters requested by a neighboring node" (i.e., *Stevens* discloses in figure 2 assigning the link but not transitioning back to a known state although the examiner notes this may be supported as mentioned in the rejection for claim 37). Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to also transition back to a known state in response to an action for a wireless network in general. Support is provided in general by *Ciotti* using update messages from the network such as router updates. These update messages signify that an operational data is outside the predefined parameter, that a change in wireless topology has occurred, and that a modification in operating parameters has been accepted. As support, *Ciotti* discloses in figure 11a updating a routing table (i.e., based on a routing update message the method is revisited as is known in the art). Thus *Ciotti* discloses motivation for transitioning back to a known state in general (in order to handle updating messages) such that a skilled artisan would be motivated to transition back to a known state if changes in general occur in the network. These changes including "determining the operational data is outside the predefined parameters", "a change in neighboring wireless topology" and "accepting a modification in operating parameters requested by a neighboring node".

As all three reference disclose wireless networks in general, and more specifically wireless routing, examiner notes a motivation to combine the subject matter as a whole for all the references.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris
Examiner
Art Unit 2663

DWF

CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 9/29/03